12-34-0000
Relay Output Module

PRODUCT INFORMATION

Sea Air and Land Communications Ltd, PO Box 22-621, 120 St Asaph Street, Christchurch, New Zealand

12-34-0000
Relay Output Module

1 DESCRIPTION

The 12-34 is a low cost scalable relay output solution. Each 12-34 can allow 4 relays to be controlled using the Salcom relay control protocol. The 12-34 can be daisy chained to allow any number of relays to be controlled.

A green and red LED display operational status, a chart displaying status codes can be found in section 4 - Connections. A 12 terminal connector is used to bring all connections from the 4 relays out. The relays are not mains rated.

Programming software is not required for this product. On startup the firmware version number, monoshot timer settings and unit ID are displayed, and can be changed.

The relay unit connects directly to a 12-84 receiver or PC serial port without any special configuration requirements. The 12-84 can be configured to send all relay control packets down the serial port to all other units.

2 WARRANTY

Our products are warranted for a period of 12 months from date of purchase against faulty materials and workmanship. Should any fault occur the unit should be returned to the vendor, freight pre-paid.

Please include a description of the fault to assist with prompt return. Any unauthorized alterations or repairs will invalidate the warranty.

3 DISCLAIMER

Information provided in this document is carefully prepared and offered in good faith as a guide in the installation and use of the 12-32. Installers must ensure that the final installation operates satisfactorily within the relevant regulatory requirements. We accept no responsibility for incorrect installation.

We reserve the right to change products, specifications, and installation data at any time, without notice.

4 CONNECTIONS

The power supply is connected via the green power connector to +13.8 Volts and Ground. The supply input is protected against reversed connection.

Fig. 1. Pin numbering: looking into the sockets with the power connector on the left, pin 1 is on the left.

S1 Serial Port One	
Pin 1	Ground
Pin 2	Not used
Pin 3	Not used
Pin 4	Not used
Pin 5	RS232 Rx
Pin 6	RS232 Tx

S2 Serial Port Two	
Pin 1	Ground
Pin 2	Not used
Pin 3	Not used
Pin 4	Not used
Pin 5	RS232 Tx
Pin 6	RS232 Rx

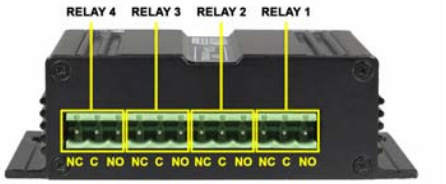

Fig. 2. Pin outputs for relay connectors.

5 CONFIGURATION

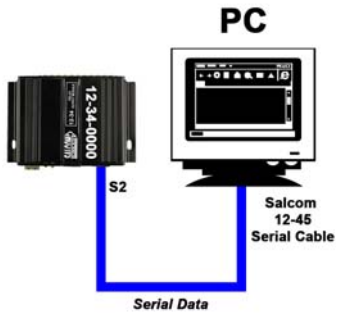

Fig. 3. Connecting a 12-34 to a PC for configuration.

The 12-34 does not require the use of configuration software, it can be set from a terminal (9600,N,8,1). Configurable items are:

- **Monoshot time for each relay.**
- **Unit ID.**

On startup the 12-34 will respond with "SALCOM 12-34-0000 Unit ID:XX"
"Relay 1 Monoshot time: 0 (Latched)"
"Relay 2 Monoshot time: 0 (Latched)"
"Relay 3 Monoshot time: 0 (Latched)"
"Relay 4 Monoshot time: 0 (Latched)"
"Enter ### to configure"

When in configuration Mode the 12-34 will respond with:
"SALCOM 12-34-0000 Configuration"
"(1) To set Relay 1 monoshot time"
"(2) To set Relay 2 monoshot time"
"(3) To set Relay 3 monoshot time"
"(4) To set Relay 4 monoshot time"
"(5) To set unit ID"

When setting relay times the 12-34 will respond with:
"Relay 1: Enter time in mS (0 = Latched, Max 1800000)"

When setting unit ID the 12-34 will respond with:
"Unit ID: Enter unit ID (0-99)"

6 OPERATION

After startup the unit parameters are displayed, and unit is able to be configured. Configuration mode can only be entered within 20 seconds of startup, or within 20 seconds of the last configuration item change. This is to prevent accidental configuration changes.

Reception of a relay control packet within the startup period will result in the 12-34 immediately exiting config mode.

The green LED shows unit operational status – flashes when ready and idle. The red LED flashes upon error, or is held steady on for at least one second upon reception of any command valid for that unit.

The green LED is also held steady on for at least one second when there is a valid command for ANY unit, allowing a daisy-chained arrangement to be easily inspected.

Green LED	Red LED	Description
Slow Flashing	OFF	Unit Operational and Idle
ON (at least one second)	OFF	Valid command recived, but wrong ID
ON (at least one second)	ON (at least one second)	Valid command received for this unit
Slow Flashing	Fast Flashing	Error Condition

Relay Operation
Relays are controlled using Salcom relay control protocol – see (Relay Control Protocol below)

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The 12-34 will tolerate 12-84 protocol, looking for the relay control protocol payload embedded in the string. The 12-34 will tolerate the relay control protocol being embedded anywhere within a string, so will cope with messages like "Main Door Open 01109" or "02112378987 01109".

In the case of complex numeric messages the 12-34 will act on the first instance where a valid relay control protocol is matched for that unit ID. Commands are not buffered within the 12-34, simply inspecting the contents of the serial string, and passing the message immediately on again to be processed again by the next 12-34 in the system.

Relay Control Protocol
Relay commands take the form IIC0X9 where:
II is the 2 character unit ID, C is a variable number of relays to close (up to 4). 0 marks the end of relays to open, X is a variable length list of relays to close (up to 4). Commands are always terminated by a 9. A red LED will display on the PCB showing which relay is closed.

e.g.
23109
Will only address a unit with matching ID 23. Relay 1 will be closed. No other action taken.

231209 Will close relay 1 and 2 on a unit with the ID of 23.

230129 Will open relay 1 and 2 on a unit with the ID of 23.

23012349 Will open relay 1,2,3 & 4 on a unit with the ID of 23.

7 MULTIPLE UNIT SETUP

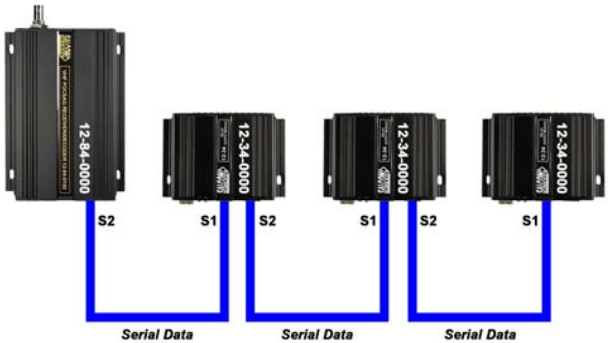

Fig. 4. Multiple units controlled by a 12-84 receiver.

Fig. 5. Multiple units controlled by a PC.

8 SPECIFICATIONS

Power Supply	+11.5 V to 15.2 V nom 13.8 V
Input Current	37 mA approx plus 20 mA per energised relay.
Message format	SALCOM proprietary relay control protocol
Serial input/output	9600 baud no parity, 8 data bits, 1 stop bit

SEA AIR & LAND COMMUNICATIONS LTD
PO Box 22-621, 120 St.Asaph Street, Christchurch, New Zealand
Phone: (03) 379-2298 Fax: (03) 365-1580 Email: info@salcom.co.nz
Visit us at www.salcom.co.nz